



THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: DePuydt et al)	
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Application No. 10/697,206)	Examiner: G. Graham
)	
Filed: October 30, 2003)	Group Art Unit 1744
)	
For: Brush Head For Toothbrush)	Confirm No. 2209

DECLARATION OF JOSEPH A. DEPUYDT
IN SUPPORT OF REQUEST FOR INTERFERENCE

Joseph A. DePuydt, a citizen of the United States, residing at 65 Longwood Road, Quincy, Massachusetts, 02169, U.S.A., hereby states that:

1. He is a mechanical engineer with a B.S.M.E. degree from the University of Minnesota in 1989 and a M.S.M.E. degree from the University of Minnesota in 1991.

2. He has been employed by The Gillette Company in Boston, Massachusetts as a mechanical engineer for 14 years from June 1991 to the present time. He is currently employed as Group Manager for the Advanced Edge Technology Group which is responsible for the development of blade edges for shaving products.

3. In 1997 he was employed by the Gillette Company as a Senior Research Engineer work with the Advanced Manufacturing Technology Group and he worked on advanced manufacturing concepts for blades and razor products. At that time, he also worked on oral care products for the Gillette Company.

4. He is one of the inventors of the subject matter described in the following U. S. Patent Applications assigned to The Gillette Company:

Brush Head For Toothbrush
Application No. 09/425,423
Filed October 22, 1999

Brush Head For Toothbrush
Application No. 10/456,769
Filed June 6, 2003

Brush Head For Toothbrush
Application No. 10/697,206
Filed October 30, 2003

5. Exhibit 1 is a copy of the patent specification, claims and drawings of Application No. 10/456,423 filed on October 22, 1999.

6. Exhibit 2 is a copy of a combined declaration and power of attorney which he signed for Application No. 09/425,423 on February 18, 2000.

7. Exhibit 5 is a copy of the patent specification, claims and drawings of Application No. 10/456,729 filed on June 6, 2003.

8. Exhibit 6 is a copy of a combined declaration and power of attorney which he signed for Application No. 10/456,769 on June 6, 2003.

9. Exhibit 9 is a copy of the patent specification, claims and drawings of Application No. 10/697,206 filed on October 30, 2003.

10. He is the inventor of the first embodiment which is shown in Figures 1, 2, 3A and 3B and described in the specification of Application No. 09/425,423 (Exhibit 1). The same embodiment is disclosed in Application No. 10/456,769 (Exhibit 5) and Application No. 10/697,206 (Exhibit 9). The first embodiment of the invention relates to a brush head for an electric toothbrush which includes a rotary brush capable of oscillating motion about its axis and a slidable core with one or more bristles capable of reciprocating motion relative to the rotary brush.

11. He conceived the first embodiment of the invention described in Exhibit 1 in the United States at least as early as October 17, 1997. He prepared drawings and a written description

of his invention in the United States at least as early as October 17, 1997. Exhibit 16, pages 1-3, is a copy of the drawings and the written description of his invention which he prepared.

12. He constructed a hand operated model of the brush head in the United States at least as early as November 1997. The hand operated model is hereafter designated the "first prototype" for purposes of reference. He prepared drawings and a written description of the first prototype in the United States at least as early as October 30, 1997. Exhibit 16, pages 4-5, is a copy of the drawings and the written description which he prepared of the first prototype.

13. He constructed a power operated model of the brush head in the United States at least as early as January 1998. The power operated model is hereafter designated the "second prototype" for purposes of reference. He prepared drawings and a written description of the second prototype in the United States at least as early as January 22, 1998. Exhibit 17, pages 1-2, is a copy of the drawings and the written description which he prepared of the second prototype.

14. He has reviewed the interference count corresponding to Claim 1 of U. S. Patent 6,889,401 and to Claim 8 filed in U. S. Application No. 10/697,206 which recites as follows:

A powered toothbrush comprising

- (1) a handle with a neck,
- (2) a head mounted to said neck, said head having an exposed outer surface,
- (3) a first tuft block mounted to a fixed section of said head, said first tuft block having bristles extending outwardly from said exposed outer surface,
- (4) a first drive structure operatively connected to said first tuft block for moving said first tuft block in a plane generally parallel to said exposed outer surface,

(5) a second tuft block mounted within said fixed section of said head, at least a portion of said second tuft block being aligned with an opening in said exposed outer surface,

(6) said second tuft block having bristles extending outwardly from said exposed outer surface, and

(7) said second tuft block being mounted for moving in a direction generally perpendicular to said exposed outer surface within said opening.

15. He believes that each of the above identified applications, 09/425,423 (Exhibit 1), 10/465,769 (Exhibit 5), and 10/697,206 (Exhibit 9), supports the interference count (Claim 8) for the reasons stated below.

Application No. 09/425,423 (Exhibit 1)

16. U. S. Patent Application No. 09/425,423 discloses four embodiments of a brush head for a toothbrush: (1) a first embodiment shown in Figures 1, 2 and 3A-3B, (2) a second embodiment shown in Figures 4-7, (3) a third embodiment shown in Figures 8-12, and a fourth embodiment shown in Figures 13-14.

17. The first embodiment of Application No. 09/425,423 (Exhibit 1) supports all of the requirements of the interference count (Claim 8). The first embodiment of Exhibit 1 also supports all of the requirements of dependent Claims 9-12. The support for Claims 8-12 in Exhibit 1 is explained in detail below.

18. The preamble of Claim 8 which recites a "powered toothbrush" is supported by Application No. 09/425,423 (Exhibit 1) as follows. In the Summary Of The Invention (page 1, line 34), the invention is described as "a head for a toothbrush". In the specification, at page 2, lines 19-20, FIG. 1 is described as "a side view of an electric toothbrush head attached to a brush handle/drive". The Detailed Description, at page 3, line 15, refers to "an electric toothbrush head 10". The term "electric toothbrush" used in the specification refers to an electrically powered toothbrush.

19. Limitation (1) of Claim 8 which recites "a handle with a neck" is supported by Application No. 09/425,423 (Exhibit 1) as follows. The specification recites that "a head for a toothbrush includes a neck" (page 1, lines 34-35). FIG. 1 is described as "a side view of an electric toothbrush head attached to a brush handle/drive" (page 2, lines 19-20). At page 3, lines 14-15, it is disclosed that "an electric toothbrush head 10 includes a neck 12". The neck 12 is shown in FIG. 1 of the drawings.

20. Limitation (2) of Claim 8 which recites "a head mounted to said neck, said head having an exposed outer surface" is supported by Application No. 09/425,423 (Exhibit 1) as follows. The "head mounted to said neck" of Claim 8 is satisfied by the neck 12 and bristle support 14 of FIGS. 1-2. The bristle support 14 corresponds to the "head" and the neck 12 corresponds to the "neck" of Claim 8. At page 3, lines 15-16, it is disclosed that "an electric toothbrush head 10 includes a neck 12 which is connected to the bristle support 14". At page 3, line 21, it is disclosed that "FIG. 2 shows support 14 in an exploded side view". One of the components of the bristle support 14 is a brush base 24 with a flat top surface shown in FIG. 2 which corresponds to the "exposed outer surface" of Claim 8.

21. Limitation (3) Claim 8 which recites "a first tuft block mounted to a fixed section of said head, said first tuft block having bristles extending outwardly from said exposed outer surface" is supported by Application No. 09/425,423 (Exhibit 9).

The brush base 24 of Exhibit 1 (page 3, line 31) corresponds to the "first tuft block" of Claim 8. The brush base 24 is mounted in a housing 34 (page 3, lines 34-35) which is shown as fixed to the distal end of the neck 12. The housing 34 corresponds to the "fixed section of said head" of Claim 8. The brush base 24 includes bristles 16 shown in FIG. 2 which extend outwardly from the top surface of the brush base 24 of the bristle support 14.

22. Limitation (4) of Claim 8 which recites "a first drive structure operatively connected to said first tuft block for moving said first tuft block in a plane generally parallel to said exposed outer surface" is supported by Application No. 09/425,423 (Exhibit 1). The operation of the bristle support 14 is disclosed at page 4, lines 1-13. The specification states that the pin 36 is oscillated about its axis by a drive mechanism (not shown) in neck 12. The drive mechanism can be of conventional design. Oscillation of the pin 36 causes the brush base 24 and bristles 16 to oscillate in a rotary pattern (page 4, line 5). The brush base 24 oscillates in a plane generally parallel to its top surface. Thus, the drive mechanism which oscillates the brush base 24 satisfies the requirement of Claim 8 of a drive structure for moving the first tuft block in a plane generally parallel to the exposed outer surface.

23. Limitation (5) of Claim 8 recites "a second tuft block mounted within said fixed section of said head, at least a portion of said second tuft block being aligned with an opening in said exposed outer surface". This limitation is supported by Application No. 09/425,423 (Exhibit 1). The slider core 20 of Exhibit 1 (page 3, line 22) corresponds to the "second tuft block" of Claim 8. The slider core 20 is positioned inside a brush base 24 mounted in a housing 34 of the bristle support 14.

The housing 34 corresponds to the "fixed section of said head" of Claim 8. As shown in FIG. 2, the slider core 20 is aligned with an opening shown by phantom lines in the top surface of the brush base 24 to satisfy the limitation of Claim 8 that the second tuft block is aligned with an opening in the exposed outer surface.

24. Limitation (6) of Claim 8 which recites "said second tuft block having bristles extending outwardly from said exposed outer surface" is supported by Application No. 09/425,423 (Exhibit 1). The slider core 20 of the Exhibit 1 includes a probe 18 which can be "a single large bristle or a tuft of

smaller bristles" (page 3, lines 21-24). The probe or bristles 18 extend outwardly from the top surface of the brush base 24 to satisfy the limitation of Claim 8 that the bristles extend outwardly from the exposed outer surface.

25. Limitation (7) of Claim 8 recites as follows: "said second tuft block being mounted for moving in a direction generally perpendicular to said exposed outer surface within said opening". This limitation is supported by Application No. 09/425,423 (Exhibit 1). The slider core 20 of the Exhibit 1 is mounted for movement in a direction perpendicular to the top surface of the brush base 24. The slider core 20 moves up and down relative to the bristles 16 during oscillation of the brush base 24 (page 4, lines 8-11). FIGS. 3A-3B show that the slider core 20 moves up and down in the opening in the brush base 24. The up and down movement of the slider core 20 satisfies the limitation of Claim 8 that the second tuft block (core 20) is mounted for moving in a direction generally parallel to the exposed outer surface within the opening.

26. Dependent Claim 9 which recites that "said second tuft block oscillates in an in and out direction perpendicular to said outer surface to constitute a vibrating section" is supported by Application No. 09/425,423. The core 20 corresponds to the second tuft block. The specification at page 4, lines 6-8, states that the oscillation of the base 24 causes core 20 and probe 18 to oscillate with the base because the pins 22 ride in track 28 of the base. Pins 22 also ride in respective tracks 26 in the housing, thus causing core 20 and probe 18 to move up and down relative to bristles 16 during oscillation of brush base 24 (page 4, lines 8-14). The up and down movement of the core 20 and the probe 18 is shown in FIGS. 3A-3B. The up and down movement of the core 20 satisfies the requirement of Claim 9 that the second tuft block (core 20) oscillates in an in and out direction perpendicular to the outer surface (top surface of brush base 24) to constitute a vibrating section.

27. Dependent Claim 10 which recites "second drive structure operatively connected to said second tuft block for moving said second tuft block is supported by Application No. 09/425,423 as follows. The specification at page 3, lines 29-30, states that a pair of cam follower pins 22 are secured to opposite sides of the lower portion of core 20. Core 20 is positioned inside of a brush base 24 such that pins 22 are forced to ride along respective cam tracks 26 as well as respective vertical slider tracks 28 (page 3, lines 30-33). In the operation of support 14, pins 22 ride in respective tracks 26 in the housing, thus causing core 20 and probe 18 to move up and down relative to bristles 16 during oscillation of brush base 24 (page 4, lines 8-11). The pins 22 and tracks 26 correspond to the second drive structure of Claim 10 operatively connected to the second tuft block (core 20) for moving the second tuft block.

28. Dependent Claim 11 which recites that "said first tuft block is moved back and forth in an oscillating manner" is supported by Application No. 09/425,423 as follows. The brush base 24 corresponds to the first tuft block. The specification at page 4, lines 2-3, states that the pin 36 is oscillated about its long axis by a drive mechanism (not shown) in neck 12. Oscillation of pin 36 causes brush base 24 and bristles 16 to oscillate in a rotary pattern (page 4, lines 4-5). Thus, the first tuft block (brush base 24) is moved back and forth in an oscillating manner to satisfy the requirements of Claim 11.

29. Dependent Claim 12 which recites that "said first tuft block is oscillated in a rotational direction" is supported by Application No. 09/425,423 as follows. The specification states that pin 36 is oscillated about its long axis by a drive mechanism (not shown) in neck 12 (page 4, lines 2-3). Oscillation of pin 36 causes brush base 24 and bristles 16 to oscillate in a rotary pattern (page 4, lines 4-5). Thus, the first tuft block (brush base 24) is oscillated in a rotational direction to satisfy the requirements of Claim 12.

Application No. 10/456,769 (Exhibit 5)

30. U. S. Patent Application No. 10/456,769 discloses four embodiments of a brush head for a toothbrush: (1) a first embodiment shown in Figures 1, 2 and 3A-3B, (2) a second embodiment shown in Figures 4-7, (3) a third embodiment shown in Figures 8-12, and a fourth embodiment shown in Figures 13-14.

31. The first embodiment of Application No. 10/456,769 (Exhibit 5) supports all of the requirements of the interference count (Claim 8). The first embodiment of Exhibit 1 also supports all of the requirements of dependent Claims 9-12. The support for Claims 8-12 in Exhibit 5 is explained in detail below.

32. The preamble of Claim 8 which recites a "powered toothbrush" is supported by Application No. 10/456,769 (Exhibit 5) as follows. In the Summary Of The Invention (page 1, line 35, to page 2, line 1), the invention is described as "a head for an electric toothbrush". In the specification, at page 2, lines 23-24, FIG. 1 is described as "a side view of an electric toothbrush head attached to a brush handle/drive". The Detailed Description, at page 3, line 19, refers to "an electric toothbrush head 10". The term "electric toothbrush" used in the specification refers to an electrically powered toothbrush.

33. Limitation (1) of Claim 8 which recites "a handle with a neck" is supported by Application No. 10/456,769 (Exhibit 5) as follows. The specification recites that "a head for a electric toothbrush includes a neck" (page 1, line 36, to page 2, line 1). FIG. 1 is described as "a side view of an electric toothbrush head attached to a brush handle/drive" (page 2, lines 23-24). At page 3, lines 19-20, it is disclosed that "an electric toothbrush head 10 includes a neck 12". The neck 12 is shown in FIG. 1 of the drawings.

34. Limitation (2) of Claim 8 which recites "a head mounted to said neck, said head having an exposed outer surface" is supported by Application No. 10/456,769 (Exhibit 5) as follows. The "head mounted to said neck" of Claim 8 is satisfied

by the neck 12 and bristle support 14 of FIGS. 1-2. The bristle support 14 corresponds to the "head" and the neck 12 corresponds to the "neck" of Claim 8. At page 3, lines 19-20, it is disclosed that "an electric toothbrush head 10 includes a neck 12 which is connected to the bristle support 14". At page 3, line 25, it is disclosed that "FIG. 2 shows support 14 in an exploded side view". One of the components of the bristle support 14 is a brush base 24 with a flat top surface shown in FIG. 2 which corresponds to the "exposed outer surface" of Claim 8.

35. Limitation (3) Claim 8 which recites "a first tuft block mounted to a fixed section of said head, said first tuft block having bristles extending outwardly from said exposed outer surface" is supported by Application No. 10/456,769 (Exhibit 5).

The brush base 24 of Exhibit 5 (page 3, line 35) corresponds to the "first tuft block" of Claim 8. The brush base 24 is mounted in a housing 34 (page 4, lines 1-3) which is shown as fixed to the distal end of the neck 12. The housing 34 corresponds to the "fixed section of said head" of Claim 8. The brush base 24 includes bristles 16 shown in FIG. 2 which extend outwardly from the top surface of the brush base 24 of the bristle support 14.

36. Limitation (4) of Claim 8 which recites "a first drive structure operatively connected to said first tuft block for moving said first tuft block in a plane generally parallel to said exposed outer surface" is supported by Application No. 10/456,769 (Exhibit 5). The operation of the bristle support 14 is disclosed at page 4, lines 5-17. The specification states that the pin 36 is oscillated about its axis by a drive mechanism (not shown) in neck 12. The drive mechanism can be of conventional design. Oscillation of the pin 36 causes the brush base 24 and bristles 16 to oscillate in a rotary pattern (page 4, line 9). The brush base 24 oscillates in a plane generally parallel to its top surface. Thus, the drive mechanism which oscillates the brush base 24 satisfies the requirement of Claim 8 of a drive structure for moving the first tuft block in a plane

generally parallel to the exposed outer surface.

37. Limitation (5) of Claim 8 recites "a second tuft block mounted within said fixed section of said head, at least a portion of said second tuft block being aligned with an opening in said exposed outer surface". This limitation is supported by Application No. 10/456,769 (Exhibit 5). The slider core 20 of Exhibit 5 (page 3, line 26) corresponds to the "second tuft block" of Claim 8. The slider core 20 is positioned inside a brush base 24 mounted in a housing 34 of the bristle support 14.

The housing 34 corresponds to the "fixed section of said head" of Claim 8. As shown in FIG. 2, the slider core 20 is aligned with an opening shown by phantom lines in the top surface of the brush base 24 to satisfy the limitation of Claim 8 that the second tuft block is aligned with an opening in the exposed outer surface.

38. Limitation (6) of Claim 8 which recites "said second tuft block having bristles extending outwardly from said exposed outer surface" is supported by Application No. 10/456,769 (Exhibit 5). The slider core 20 of the Exhibit 5 includes a probe 18 which can be "a single large bristle or a tuft of smaller bristles" (page 3, lines 25-28). The probe or bristles 18 extend outwardly from the top surface of the brush base 24 to satisfy the limitation of Claim 8 that the bristles extend outwardly from the exposed outer surface.

39. Limitation (7) of Claim 8 recites as follows: "said second tuft block being mounted for moving in a direction generally perpendicular to said exposed outer surface within said opening". This limitation is supported by Application No. 10/456,769 (Exhibit 5). The slider core 20 of the Exhibit 5 is mounted for movement in a direction perpendicular to the top surface of the brush base 24. The slider core 20 moves up and down relative to the bristles 16 during oscillation of the brush base 24 (page 4, lines 12-15). FIGS. 3A-3B show that the slider core 20 moves up and down in the opening in the brush base 24.

The up and down movement of the slider core 20 satisfies the limitation of Claim 8 that the second tuft block (core 20) is mounted for moving in a direction generally parallel to the exposed outer surface within the opening.

40. Dependent Claim 9 which recites that "said second tuft block oscillates in an in and out direction perpendicular to said outer surface to constitute a vibrating section" is supported by Application No. 10/456,769 as follows. The core 20 corresponds to the second tuft block. The specification at page 4, lines 10-12, states that the oscillation of the base 24 causes core 20 and probe 18 to oscillate with the base because the pins 22 ride in track 28 of the base. Pins 22 also ride in respective tracks 26 in the housing, thus causing core 20 and probe 18 to move up and down relative to bristles 16 during oscillation of brush base 24 (page 4, lines 12-17). The up and down movement of the core 20 and the probe 18 is shown in FIGS. 3A-3B. The up and down movement of the core 20 satisfies the requirement of Claim 9 that the second tuft block (core 20) oscillates in an in and out direction perpendicular to the outer surface (top surface of brush base 24) to constitute a vibrating section.

41. Dependent Claim 10 which recites "second drive structure operatively connected to said second tuft block for moving said second tuft block is supported by Application No. 10/456,769 as follows. The specification at page 3, lines 33-34, states that a pair of cam follower pins 22 are secured to opposite sides of the lower portion of core 20. Core 20 is positioned inside of a brush base 24 such that pins 22 are forced to ride along respective cam tracks 26 as well as respective vertical slider tracks 28 (page 3, line 34, to page 4, line 1). In the operation of support 14, pins 22 ride in respective tracks 26 in the housing, thus causing core 20 and probe 18 to move up and down relative to bristles 16 during oscillation of brush base 24 (page 4, lines 12-15). The pins 22 and tracks 26 correspond to the second drive structure of Claim 10 operatively connected

to the second tuft block (core 20) for moving the second tuft block.

42. Dependent Claim 11 which recites that "said first tuft block is moved back and forth in an oscillating manner" is supported by Application No. 10/456,769 as follows. The brush base 24 corresponds to the first tuft block. The specification at page 4, lines 6-7, states that the pin 36 is oscillated about its long axis by a drive mechanism (not shown) in neck 12. Oscillation of pin 36 causes brush base 24 and bristles 16 to oscillate in a rotary pattern (page 4, lines 8-9). Thus, the first tuft block (brush base 24) is moved back and forth in an oscillating manner to satisfy the requirements of Claim 11.

43. Dependent Claim 12 which recites that "said first tuft block is oscillated in a rotational direction" is supported by Application No. 10/456,769 as follows. The specification states that pin 36 is oscillated about its long axis by a drive mechanism (not shown) in neck 12 (page 4, lines 6-7). Oscillation of pin 36 causes brush base 24 and bristles 16 to oscillate in a rotary pattern (page 4, lines 8-9). Thus, the first tuft block (brush base 24) is oscillated in a rotational direction to satisfy the requirements of Claim 12.

Application No. 10/697,206 (Exhibit 9)

44. U. S. Patent Application No. 10/697,206 discloses four embodiments of a brush head for a toothbrush: (1) a first embodiment shown in Figures 1, 2 and 3A-3B, (2) a second embodiment shown in Figures 4-7, (3) a third embodiment shown in Figures 8-12, and a fourth embodiment shown in Figures 13-14.

45. The first embodiment of Application No. 10/697,206 (Exhibit 9) supports all of the requirements of the interference count (Claim 8). The first embodiment of Exhibit 1 also supports all of the requirements of dependent Claims 9-12. The support for Claims 8-12 in Exhibit 9 is explained in detail below.

46. The preamble of Claim 8 which recites a "powered toothbrush" is supported by Application No. 10/697,206 (Exhibit

9) as follows. In the Summary Of The Invention (page 2, lines 4-5), the invention is described as "a head for an electric toothbrush". In the specification, at page 2, lines 17-18, FIG. 1 is described as "a side view of an electric toothbrush head attached to a brush handle/drive". The Detailed Description, at page 3, line 13, refers to "an electric toothbrush head 10". The term "electric toothbrush" used in the specification refers to an electrically powered toothbrush.

47. Limitation (1) of Claim 8 which recites "a handle with a neck" is supported by Application No. 10/697,206 (Exhibit 1) as follows. FIG. 1 is described as "a side view of an electric toothbrush head attached to a brush handle/drive" (page 2, lines 17-18). At page 3, lines 13-14, it is disclosed that "an electric toothbrush head 10 includes a neck 12". The neck 12 is shown in FIG. 1 of the drawings.

48. Limitation (2) of Claim 8 which recites "a head mounted to said neck, said head having an exposed outer surface" is supported by Application No. 10/697,206 (Exhibit 9) as follows. The "head mounted to said neck" of Claim 8 is satisfied by the neck 12 and bristle support 14 of FIGS. 1-2. The bristle support 14 corresponds to the "head" and the neck 12 corresponds to the "neck" of Claim 8. At page 3, lines 13-14, it is disclosed that "an electric toothbrush head 10 includes a neck 12 which is connected to the bristle support 14". At page 3, line 19, it is disclosed that "FIG. 2 shows support 14 in an exploded side view". One of the components of the bristle support 14 is a brush base 24 with a flat top surface shown in FIG. 2 which corresponds to the "exposed outer surface" of Claim 8.

49. Limitation (3) Claim 8 which recites "a first tuft block mounted to a fixed section of said head, said first tuft block having bristles extending outwardly from said exposed outer surface" is supported by Application No. 10/697,206 (Exhibit 9). The brush base 24 of Exhibit 9 (page 3, line 29) corresponds to the "first tuft block" of Claim 8. The brush base 24 is mounted

in a housing 34 (page 3, lines 32-33) which is shown as fixed to the distal end of the neck 12. The housing 34 corresponds to the "fixed section of said head" of Claim 8. The brush base 24 includes bristles 16 shown in FIG. 2 which extend outwardly from the top surface of the brush base 24 of the bristle support 14.

50. Limitation (4) of Claim 8 which recites "a first drive structure operatively connected to said first tuft block for moving said first tuft block in a plane generally parallel to said exposed outer surface" is supported by Application No. 10/697,206 (Exhibit 9). The operation of the bristle support 14 is disclosed at page 3, line 35, to page 4, line 11. The specification states that the pin 36 is oscillated about its axis by a drive mechanism (not shown) in neck 12. The drive mechanism can be of conventional design. Oscillation of the pin 36 causes the brush base 24 and bristles 16 to oscillate in a rotary pattern (page 4, line 3). The brush base 24 oscillates in a plane generally parallel to its top surface. Thus, the drive mechanism which oscillates the brush base 24 satisfies the requirement of Claim 8 of a drive structure for moving the first tuft block in a plane generally parallel to the exposed outer surface.

51. Limitation (5) of Claim 8 recites "a second tuft block mounted within said fixed section of said head, at least a portion of said second tuft block being aligned with an opening in said exposed outer surface". This limitation is supported by Application No. 10/697,206 (Exhibit 9). The slider core 20 of Exhibit 9 (page 3, line 20) corresponds to the "second tuft block" of Claim 8. The slider core 20 is positioned inside a brush base 24 mounted in a housing 34 of the bristle support 14.

The housing 34 corresponds to the "fixed section of said head" of Claim 8. As shown in FIG. 2, the slider core 20 is aligned with an opening shown by phantom lines in the top surface of the brush base 24 to satisfy the limitation of Claim 8 that the second tuft block is aligned with an opening in the exposed outer

surface.

52. Limitation (6) of Claim 8 which recites "said second tuft block having bristles extending outwardly from said exposed outer surface" is supported by Application No. 10/697,206 (Exhibit 9). The slider core 20 of the Exhibit 5 includes a probe 18 which can be "a single large bristle or a tuft of smaller bristles" (page 3, lines 19-22). The probe or bristles 18 extend outwardly from the top surface of the brush base 24 to satisfy the limitation of Claim 8 that the bristles extend outwardly from the exposed outer surface.

53. Limitation (7) of Claim 8 recites as follows: "said second tuft block being mounted for moving in a direction generally perpendicular to said exposed outer surface within said opening". This limitation is supported by Application No. 10/697,206 (Exhibit 9). The slider core 20 of the Exhibit 9 is mounted for movement in a direction perpendicular to the top surface of the brush base 24. The slider core 20 moves up and down relative to the bristles 16 during oscillation of the brush base 24 (page 4, lines 6-9). FIGS. 3A-3B show that the slider core 20 moves up and down in the opening in the brush base 24. The up and down movement of the slider core 20 satisfies the limitation of Claim 8 that the second tuft block (core 20) is mounted for moving in a direction generally parallel to the exposed outer surface within the opening.

54. Dependent Claim 9 which recites that "said second tuft block oscillates in an in and out direction perpendicular to said outer surface to constitute a vibrating section" is supported by Application No. 10/697,206 as follows. The core 20 corresponds to the second tuft block. The specification at page 4, lines 4-6, states that the oscillation of the base 24 causes core 20 and probe 18 to oscillate with the base because the pins 22 ride in track 28 of the base. Pins 22 also ride in respective tracks 26 in the housing, thus causing core 20 and probe 18 to move up and down relative to bristles 16 during oscillation of

brush base 24 (page 4, lines 6-11). The up and down movement of the core 20 and the probe 18 is shown in FIGS. 3A-3B. The up and down movement of the core 20 satisfies the requirement of Claim 9 that the second tuft block (core 20) oscillates in an in and out direction perpendicular to the outer surface (top surface of brush base 24) to constitute a vibrating section.

55. Dependent Claim 10 which recites "second drive structure operatively connected to said second tuft block for moving said second tuft block is supported by Application No. 10/697,206 as follows. The specification at page 3, lines 27-28, states that a pair of cam follower pins 22 are secured to opposite sides of the lower portion of core 20. Core 20 is positioned inside of a brush base 24 such that pins 22 are forced to ride along respective cam tracks 26 as well as respective vertical slider tracks 28 (page 3, lines 28-31). In the operation of support 14, pins 22 ride in respective tracks 26 in the housing, thus causing core 20 and probe 18 to move up and down relative to bristles 16 during oscillation of brush base 24 (page 4, lines 6-9). The pins 22 and tracks 26 correspond to the second drive structure of Claim 10 operatively connected to the second tuft block (core 20) for moving the second tuft block.

56. Dependent Claim 11 which recites that "said first tuft block is moved back and forth in an oscillating manner" is supported by Application No. 10/697,206 as follows. The brush base 24 corresponds to the first tuft block. The specification at page 3, line 36, to page 4, line 1, states that the pin 36 is oscillated about its long axis by a drive mechanism (not shown) in neck 12. Oscillation of pin 36 causes brush base 24 and bristles 16 to oscillate in a rotary pattern (page 4, lines 2-3).

Thus, the first tuft block (brush base 24) is moved back and forth in an oscillating manner to satisfy the requirements of Claim 11.

57. Dependent Claim 12 which recites that "said first tuft block is oscillated in a rotational direction" is supported

by Application No. 10/697,206 as follows. The specification states that pin 36 is oscillated about its long axis by a drive mechanism (not shown) in neck 12 (page 3, line 36, to page 4, line 1). Oscillation of pin 36 causes brush base 24 and bristles 16 to oscillate in a rotary pattern (page 4, lines 2-3). Thus, the first tuft block (brush base 24) is oscillated in a rotational direction to satisfy the requirements of Claim 12.

Conception Of Invention

58. Exhibit 16, pages 1-3, shows and describes a dual motion brush head for an electric toothbrush which he conceived at least as early as October 17, 1997. The dual motion brush head was intended for use on a power handle of an electric toothbrush. The brush head included a rotary brush capable of oscillating motion about its axis and a slidable core with one or more fibers capable of reciprocating motion relative to the rotary brush.

59. Exhibit 16, pages 1-3, describes the invention as an "Interdental/Electric Toothbrush Head". This description of an "Electric Toothbrush" satisfies the preamble of Claim 8 which recites a "powered toothbrush".

60. Exhibit 16, pages 1-3, describes a "brush head" and shows an elongated neck for supporting the brush head. The brush head and the elongated neck satisfy limitation (1) of Claim 8 which recites a "head with a neck".

61. Exhibit 16, pages 1-3, describes a "brush head" and shows a cylindrical brush base mounted in a casing fixed at the end of the brush handle. The cylindrical brush base has a top surface which corresponds to the "exposed outer surface" of limitation (2) of Claim 8.

62. Exhibit 16, pages 1-3, describes a "brush head" and shows a cylindrical brush base including a set of brush bristles. The cylindrical brush base corresponds to the "first tuft block" of limitation (3) of Claim 8.

63. Exhibit 16, pages 1-3, describes an oscillating drive bar coupled to the brush base by a pin attachment for rotating the base back and forth about its axis. The brush base is shown as rotating in a plane parallel to the top surface of the base. The drive bar satisfies the "first drive structure" recited in limitation (4) of Claim 8.

64. Exhibit 16, pages 1-3, describes a central core mounted for axial motion in a central opening in the top surface of the brush base which, in turn, is mounted within the casing fixed at the end of the brush handle. The central core supports a central fiber or multiple fibers and corresponds to the "second tuft block" recited in limitation (5) of Claim 8.

65. Exhibit 16, pages 1-3, describes the central core with a central fiber or multiple fibers which extend from the top of the central core. The core is mounted in the central opening in the top surface of the brush base with the fibers extending above the top surface. The central core and the fibers satisfy limitation (6) of Claim 8 which recites "said second tuft block having bristles extending outwardly from said exposed outer surface".

66. Exhibit 16, pages 1-3, describes the central core with drive pins captured by vertical slots in the brush base which allow pure axial motion of the central core relative to the brush head. Cam slots are provided on the casing which drive the central core vertical during brush twist. The central core is shown as mounted for axial motion in a central opening in the top surface of the cylindrical brush base. The axial motion is shown as perpendicular to the top surface of the brush base. This motion of the central core satisfies limitation (7) of Claim 8 which recites "said second tuft block being mounted for moving in a direction generally perpendicular to said exposed outer surface within said opening".

Reduction To Practice

67. Exhibit 16, pages 4-5, shows the first prototype of the brush head which he constructed at least as early as November 1997. Page 5 of Exhibit 16 shows the primary components of the first prototype of the brush head which are labeled as items A through J.

68. Exhibit 17, pages 1-2, shows the second prototype of the brush head which he constructed at least as early as January 1998. Page 2 of Exhibit 17 shows the components of the second prototype of the brush head. The second prototype includes the same components labeled as items A through J on page 5 of Exhibit 16. The second prototype also includes a drive attachment in the base of the brush head for receiving an oscillating T-bar at the distal end of the drive linkage for imparting rotary oscillation to the brush head.

69. In January 1998, he tested the second prototype by attaching the neck of the toothbrush head to a power handle of a conventional electric toothbrush. He turned on the power handle to oscillate the output shaft and the T-bar at the distal end of the drive linkage which resulted in the rotary oscillation of the brush head and vertical reciprocation of the slider core and probe.

70. He submitted the drawings and written description of Exhibit 16 to the Patent Department of the Gillette Company on or about November 21, 1997.

71. On January 22, 1998 he made a presentation to a group of Gillette employees in Boston, Massachusetts at which he showed Exhibit 17 to them and explained his invention of a brush head for an electric toothbrush. He showed the second prototype to them and demonstrated the operation of the second prototype.

72. Exhibit 16, page 4, describes the first prototype of the brush head as "This Model Hand Operated can be fitted with Standard Drive Linkage of Electric Tooth Brush". Exhibit 17, page 2, shows that the second prototype of the brush head used

the drive linkage of an existing toothbrush which was operated by the power handle of a conventional electric toothbrush. The second prototype of the brush head satisfies the preamble of Claim 8 which recites a "powered toothbrush".

73. Exhibit 16, page 4, describes the first prototype of the brush head as including a "Brush Handle/Drive" and shows an elongated neck for supporting the brush head. Exhibit 17, page 2, shows that second prototype included an elongated neck with a brush head at the distal end of the neck. The second prototype satisfies limitation (1) of Claim 8 which recites a "head with a neck".

74. Exhibit 16, page 5, describes the "Primary Brush Head Components" of the first prototype and shows a brush base D mounted in a housing G fixed at the end of the brush handle/drive (page 4). Exhibit 17, page 2, shows that the second prototype has a brush head mounted in a casing at the end of the brush extension. The brush base D of the first prototype and the brush head of the second prototype each has a top surface which corresponds to the "exposed outer surface" of limitation (2) of Claim 8.

75. Exhibit 16, page 5, shows that the first prototype has a brush base D including a set of tufts or bristles. Exhibit 17, page 2, shows that the second prototype has a tufted brush head. The brush base D of the first prototype and the brush head of the second prototype each corresponds to the "first tuft block" of limitation (3) of Claim 8.

76. Exhibit 16, page 4, states that the first prototype of the brush head "Can be Fitted with the Standard Drive Linkage of Electric Tooth Brush". Exhibit 17, page 2, shows that the second prototype has a drive linkage with an oscillating T-Bar at its distal end which is coupled by a drive attachment to the base of the brush head for rotating the brush head back and forth about its axis. The brush head is rotated in a plane parallel to the top surface of the brush head. The drive

linkage of the second prototype corresponds to the "first drive structure" recited in limitation (4) of Claim 8.

77. Exhibit 16, pages 4-5, shows that a slider core B of the first prototype is mounted for axial motion in a central opening in the top surface of the brush base D which, in turn, is mounted within the housing G fixed at the end of the brush handle. The slider core B of the first prototype supports an inter-dental probe A. Exhibit 17, pages 1-2, shows that the slider core of the second prototype is mounted for axial motion in a central opening in the top surface of the brush head which, in turn, is mounted within the casing fixed at the end of the brush extension. The slider core of the second prototype supports an inter-dental probe. The slider core B of the first prototype and the slider core of the second prototype each corresponds to the "second tuft block" recited in limitation (5) of Claim 8.

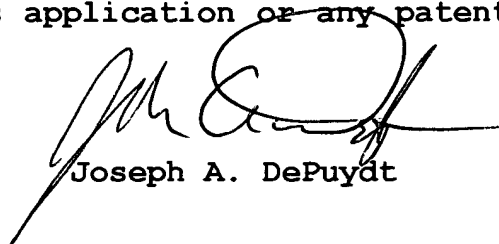
78. Exhibit 16, pages 4-5, shows an inter-dental probe A of the first prototype which extends from the top of the slider core B. The core B is mounted in the central opening in the top surface of the brush base D with the probe extending above the top surface. Exhibit 17, pages 1-2, shows an inter-dental probe of the second prototype which extends from the top of the slider core. The slider core is mounted in the central opening in the top surface of the brush head with the probe extending above the top surface. The slider core and the probe of each prototype satisfy limitation (6) of Claim 8 which recites "said second tuft block having bristles extending outwardly from said exposed outer surface".

79. Exhibit 16, pages 4-5, shows the slider core B of the first prototype with cam follower pins C which are received in a vertical slider track E in the brush base D to allow axial motion of the slider core B relative to the brush head D. Cam tracks F are shown on the housing G which drive the slider core B vertical during rotation of the brush base D. The slider core B

of the first prototype is shown as mounted for axial motion in a central opening in the top surface of the brush base D. The axial motion is perpendicular to the top surface of the brush base. Exhibit 17, pages 1-2, shows that the second prototype includes the same cam follower pins in the slider core, axial slider track in the brush base, and cam tracks in the casing to produce the same axial motion of the slide core. This axial motion of the slider core of each prototype satisfies limitation (7) of Claim 8 which recites "said second tuft block being mounted for moving in a direction generally perpendicular to said exposed outer surface within said opening".

80. The undersigned further states that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issued thereon.

Date: Sept. 1, 2005



Joseph A. DePuydt